

CLAIMS

What is claimed is:

1. A method to install software features into an electronic device, the method comprising:
 - storing at least one product configuration matrix (PCM) in the electronic device, the PCM including information representative of at least one software feature that can be installed in the electronic device;
 - reading the PCM information;
 - comparing the read PCM information with information from a configuration control file (CCF); and
 - for a match between the PCM information and the CCF information, obtaining a software feature that corresponds to the match and installing that software feature into the electronic device.
2. The method of claim 1 wherein storing the PCM in the electronic device comprises storing the PCM into a data collection device.
3. The method of claim 1 wherein at least some of the reading, comparing, obtaining, and installing is automatically performed during a boot sequence of the electronic device.
4. The method of claim 1 wherein reading the PCM information includes reading an alphanumeric string, and wherein comparing the read PCM information with information from the CCF includes:
 - comparing each position in the alphanumeric string with a corresponding position in a mask in the CCF;

for at least one position of the alphanumeric string that matches with a corresponding position in the mask, determining from the CCF a first location indicative of where a corresponding software feature is available and a second location in the electronic device where that software feature is to be installed; and

obtaining that software feature from the first location and installing the obtained software feature in the second location.

5. The method of claim 4 wherein obtaining the software feature from the first location includes obtaining the software feature from at least one of a file system, wireless network, and wired network that are all remote from the electronic device.

6. The method of claim 4 wherein comparing each position in the alphanumeric string with a corresponding position in a mask includes comparing each position in the alphanumeric string with corresponding positions in multiple masks.

7. The method of claim 1 wherein at least some of the storing, reading, comparing, obtaining, and installing is automatically performed during a boot sequence of the electronic device, subsequent to loading drivers of the electronic device and prior to loading a user interface of the operating system of the electronic device.

8. The method of claim 1 wherein obtaining the software feature that corresponds to the match includes obtaining encapsulated code for the software feature.

9. The method of claim 1, further comprising either or both updating the CCF and generating additional CCFs if there are updates and additions to software features that can be installed in the electronic device.

10. The method of claim 1 wherein storing the PCM in the electronic device comprises storing the PCM in nonvolatile memory of the electronic device.

11. The method of claim 1, further comprising obtaining the CCF from at least one of a file system, wireless network, and wired network that are all remote from the electronic device.

12. The method of claim 1 wherein installing the software feature in the electronic device includes installing the software feature without rebuilding an operating system image of the electronic device.

13. A method, comprising:
storing first information in an electronic device that is indicative of configuration features for the electronic device;
storing second information indicative of configuration features that are available for loading into the electronic device;
automatically comparing the first and second information; and
automatically loading a configuration feature into the electronic device that corresponds to a match between the compared first and second information.

14. The method of claim 13 wherein storing the second information includes:
providing a mask having characters arranged in positions of a string, the string having a first type of alphanumeric character in positions in the string that are to be ignored during the comparing with the first information and having a second type of alphanumeric character, different from the first type of alphanumeric character, in positions in the string that are to be compared for a match with corresponding positions in the first information;

specifying, for each of the positions that have the second type of alphanumeric character, a location where a corresponding configuration feature can be copied from external to the electronic device; and

specifying, for each of the positions that have the second type of alphanumeric character, a location where a corresponding configuration feature can be copied to in the electronic device.

15. The method of claim 13 wherein storing the second information includes storing the second information in a file that is remote from the electronic device, including storing the file in at least one of a remote file system, wireless network, and wired network.

16. The method of claim 13, further comprising performing the automatic comparing and loading as part of a boot sequence for the electronic device.

17. The method of claim 13 wherein loading the configuration feature into the electronic device comprises loading a software feature into the electronic device substantially without rebuilding an operating system image of the electronic device.

18. The method of claim 17, further comprising remotely obtaining code in encapsulated format that represents the software feature that is to be loaded into the electronic device.

19. An article of manufacture, comprising:
a machine-readable medium having instructions stored thereon to cause a processor to install software features into an electronic device, by:

reading at least one product configuration matrix (PCM) stored in the electronic device, the PCM including information representative of at least one software feature that can be installed in the electronic device;

obtaining a configuration control file (CCF) remotely from the electronic device;

comparing the read PCM information with information from the obtained CCF;

identifying at least one match between the PCM information and the CCF information; and

obtaining a software feature that corresponds to the match and loading that software feature into the electronic device.

20. The article of manufacture of claim 19 wherein at least some of the instructions to store, read, obtain the CCF, compare, identify, and obtain the software feature, and install include instructions to automatically perform at least some of these during a boot sequence of the electronic device.

21. The article of manufacture of claim 19 wherein the instructions to read the PCM information includes instructions to read an alphanumeric string, and wherein the instructions to compare the read PCM information with information from the CCF includes instructions to:

compare each position in the alphanumeric string with a corresponding position in a mask in the CCF;

for at least one position of the alphanumeric string that matches with a corresponding position in the mask, determine from the CCF a first location indicative of where a corresponding software feature is available and a second location in the electronic device where that software feature is to be installed; and

obtain that software feature from the first location and install the obtained software feature in the second location.

22. A system, comprising:

a means for storing first information in an electronic device that is indicative of configuration features for the electronic device;

a means for storing second information indicative of configuration features that are available for loading into the electronic device;

a means for automatically comparing the first and second information; and

a means for automatically loading a configuration feature into the electronic device that corresponds to a match between the compared first and second information.

23. The system of claim 22, further comprising means for remotely storing either or both the CCF and the available configuration features remotely from the electronic device.

24. The system of claim 22, further comprising means for performing at least some of the automatic comparing and loading during a boot sequence of the electronic device.

25. The system of claim 22, further comprising means for extending and adapting the CCF to allow additional software features to be automatically installed in the electronic device after other software features have been previously loaded and substantially without requiring a rebuild of an operating system of the electronic device.

26. The system of claim 22, further comprising means present in the electronic device for supporting operation of the electronic device.

27. An apparatus, comprising:

an operating system of an electronic device;

a product configuration matrix (PCM) having information representative of at least one software feature that can be installed in the electronic device, the PCM

information capable of being compared with information from an external configuration control file (CCF) to determine if there is at least one match between the PCM information and the CCF information;

a communication interface through which to receive a software feature that corresponds to a match between the PCM information and the CCF information; and

a storage medium in which to automatically install the received software feature, the software feature being automatically installed in the storage medium substantially without rebuild of the operating system.

28. The apparatus of claim 27 wherein the electronic device can perform a boot sequence, wherein at least some of the comparison of PCM and CCF information, reception of the software feature, and automatic installation of the software feature can be performed during the boot sequence.

29. The apparatus of claim 27 wherein the PCM is stored in a nonvolatile memory location of the electronic device.

30. The apparatus of claim 27 wherein the PCM comprises an alphanumeric string.

31. The apparatus of claim 27 wherein the communication interface can obtain either or both the CCF and software feature from at least one of a remote file system, wireless network, and wired network.

32. The apparatus of claim 27 wherein the electronic device comprises a data collection device.